REMARKS

The Office Action dated May 3, 2007 has been received and considered. Reconsideration of the outstanding rejection in the present application is respectfully requested based on the following remarks.

Anticipation Rejection of Claims 21-37

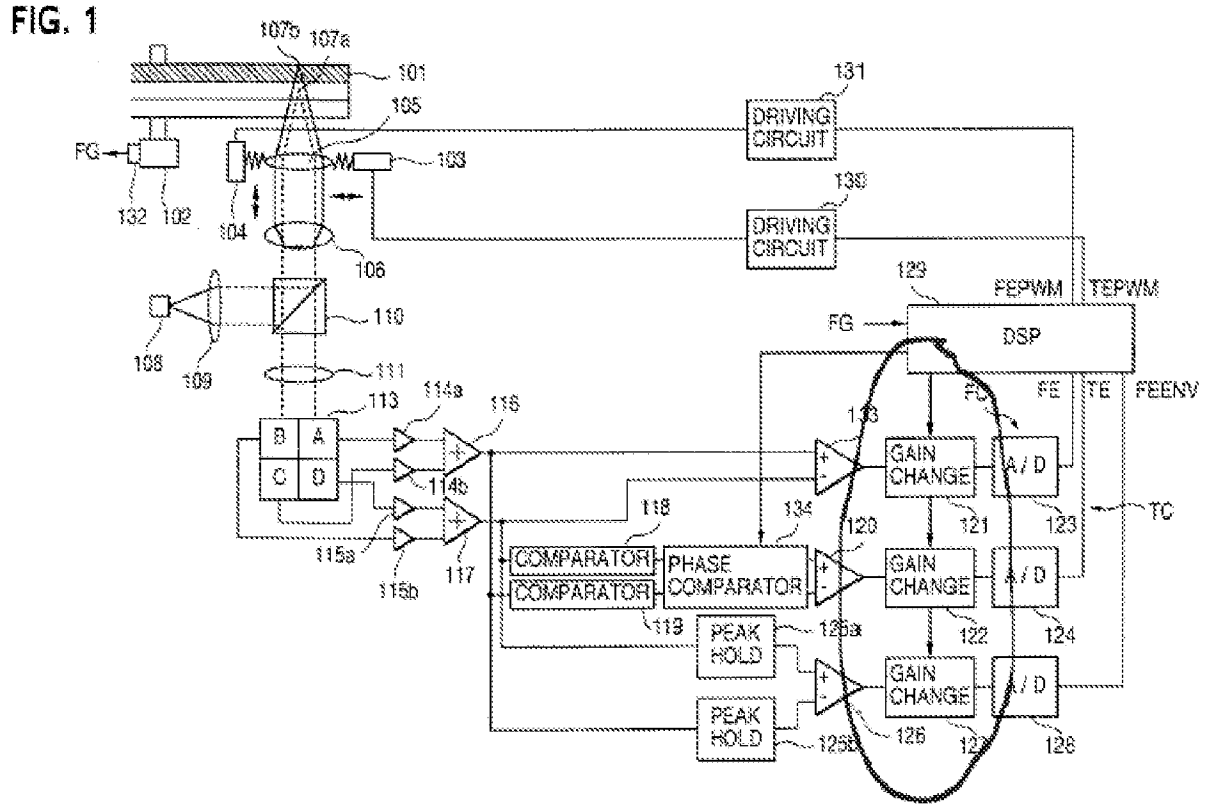
At page 4 of the Office Action, claims 21-37 are rejected under 35 U.S.C. § 102(b) as being anticipated by Watanabe (U.S. Patent No. 6,298,019). This rejection is respectfully traversed.

Independent claim 21 recites the features of "a first actuator decoupler portion comprising a first input coupled to the output of the first actuator control law portion and a second input coupled to the output of the second actuator control law portion, and an output to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position." The Office Action asserts that the differential amplifier 120 of Watanabe discloses the recited "first actuator control law portion," the differential amplifier 133 of Watanabe discloses the recited "second actuator control law portion," and the DSP 129 of Watanabe discloses the recited "first actuator decoupler portion." *Office Action*, p. 4. In particular, the Office asserts that Watanabe discloses the recited features "to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position" in that Watanabe teaches that the signal TC "is compensated by a gain change means 122 which [is] *based on the gain change 121 of the second actuator control law portion [differential amplifier] 133*." *Id.*, p. 5 (emphasis added). The Office clarifies this interpretation in stating

> [t]he prior art of Watanabe teaches a servo feedback loop for controlling focusing and tracking operations. Each servo operation is compensated by its gain change means (121, 122, 127) and all the gain change means are connected as a loop to the servo processor [DSP] 129. *In other words, the output of one actuator control signal is based/affected by the actuator control signal because their gain compensation is a series loop.*

Id., p. 3 (emphasis added).

After a review of the disclosure of Watanabe, the Applicants are unable to find any support for the Office's position that Watanabe teaches that the gain change circuits 121, 122, and 127 are connected or cascaded in series or that the output of one actuator control signal affects another actuator control signal in any manner. It is noted that the Office does not cite any particular passage of Watanabe in support of its assertion that the gain change circuits 121, 122, and 127 are looped together or affected by each other in any way. As best understood, the Office appears to base its assertion that the gain change circuits 121, 122, and 127 are cascaded in series based on the particular use of drafting lines in Figure 1 of Watanabe, as illustrated below:



Watanabe, FIG. 1 (marks added)

Judging by the arrangement of the drawing elements around the DSP 129 and the gain change circuits 121, 122, and 127, the particular illustration of the sequence of arrows between the gain change circuits 121, 122 and 127 appears to be an effort to avoid cluttering the drawing, which would occur if individual lines between the DSP 129 and the gain change circuits 121, 122, and 127 were used instead. Accordingly, the alleged "series" connections between the gain change circuits 121, 122, and 127 is merely a drafting artifact. As noted above, the written

description of Watanabe contains no teaching that the gain change circuits 121, 122, and 127 are connected together or are affected by each other. Further, Figures 2, 10, 24, 26, and 27, which illustrate embodiments of the DSP 129 with respect to the gain change circuits 121, 122, and 127, fail to show any connection between the gain change circuits 121, 122, and 127. Accordingly, the Office's interpretation of Watanabe as teaching series-connected gain change circuits 121, 122, and 127 is unreasonable and unsupported by the disclosure of Watanabe.

As the Office relies on its unsupported interpretation of Watanabe as teaching the interconnection of the gain change circuits 121, 122, and 127 as allegedly disclosing the recited feature "to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position," the Office fails to establish that Watanabe discloses, or even suggests, at least this feature of claim 21. Moreover, Watanabe fails to disclose or suggest that the TC signal is affected by the FC signal in any manner, or vice versa, and thus Watanabe in fact fails to disclose or suggest this feature of claim 21.

Independent claim 23 recites the features of "a decoupler configured to produce a modified focus control command from the focus control command and the tracking control command, and configured to produce a modified tracking control command based on the tracking control command and the focus control command." The Office again relies on the unsupported interpretation of Watanabe as teaching that the operations of the gain change circuits 121, 122, and 127 are dependent on each other. *See Office Action*, p. 6 ("gain change means 121, 122 and 127 provide the cross link" and "gain change means 121, 122 and 127 are in form of a cascade stage."). As discussed above, no such relationship is disclosed or suggested by Watanabe and Watanabe fails to disclose or suggest that a focus control signal is modified based on a tracking control signal, or vice versa. Thus the Office fails to establish that Watanabe discloses or suggests at least the above-identified features of independent claim 23.

Independent claim 26 recites the features of "determining cross-coupling characteristics of a focus actuator and a tracking actuator of an optical pickup unit." Independent claim 36 recites similar features. With respect to these features, the Office asserts "gain means 121, 122 and 127 for focusing and tracking operations are a servo loop which can be considered as a cross-coupling characteristics [sic]." *Id.*, p. 7. As discussed above, the Office's interpretation of

the gain change circuits 121, 122 and 127 as a servo loop is unsupported and thus unreasonable. Regardless, even if it is assumed, *arguendo*, that Watanabe teaches that the operations of the gain change circuits 121, 122, and 127 affect each other, the Office fails to establish how Watanabe teaches the ***determination*** of these alleged "cross-coupling characteristics" between the gain change circuits 121, 122, and 127. Further, Watanabe fails to address cross-coupling between actuators, and the characteristics thereof, in any way. Accordingly, Watanabe fails to disclose, or even suggest, determining cross-coupling characteristics of a focus actuator and a tracking actuator as provided by claim 26 and as similarly provided by claim 36.

Independent claim 26 further recites the features of "determining a decoupling matrix to decouple the focus actuator and the tracking actuator." Independent claim 36 recites similar features. With respect to these features, the Office asserts that the "DSP 129 and gain change means [121, 122, and 127] [form] a servo loop which can be considered as a de-coupling matrix of tracking and focusing." *Id.*, pp. 7-8. Thus, the Office is interpreting the alleged "servo loop" of the DSP 129 and the gain change circuits 121, 122, and 127 as both the recited "cross-coupling characteristics" and the "decoupling matrix" which is determined from the "cross-coupling characteristics." In addition to the lack of support for the Office's interpretation of Watanabe as teaching the alleged "servo loop," as discussed above, the Office fails to provide any description of how the term "decoupling matrix" has been reasonably interpreted and, consequently, how Watanabe discloses this reasonable interpretation of "decoupling matrix." Further, even if it is assumed, *arguendo*, that the alleged "servo loop" of the DSP 129 and the gain change circuits 121, 122, and 127 constitutes a "decoupling matrix," the Office fails to establish how Watanabe determines the "decoupling matrix"/"servo loop" much less how Watanabe determines the "decoupling matrix"/"servo loop" based on the "servo loop" (which the Office also interprets as the "cross-coupling characteristics" from which the "decoupling matrix" is determines as provided by claim 26). Accordingly, the Office fails to establish that Watanabe discloses or suggests at least the above-identified features of claim 26 and the similar features of independent claim 36.

Turning to independent claim 31, the Office Action does not provide any rationale for its rejection of this claim (note omission of claim 31 in detailed discussion of the anticipation rejection in the Office Action), and thus the Office fails to establish a *prima facie* rejection of

claim 31. Regardless, independent claim 31 recites the features of "a decoupler configured to decouple the focus actuator from the tracking actuator by reducing signal cross coupling." In its discussion of claim 32, which depends from claim 31, the Office again relies on the unsupported and unreasonable interpretation of Watanabe as teaching interlinked claim change circuits 121, 122, and 127. *Office Action*, p. 8 ("gain change means 121, 122 and 127 are cascaded in a series mode which modifies a tracking mode and a focusing mode"). Further, Watanabe fails to address signal cross coupling in any manner. Watanabe therefore fails to disclose, or even suggest, a decoupler that decouples a focus actuator from a tracking actuator by reducing signal cross coupling as provided by claim 31.

As discussed above, Watanabe fails to disclose, or even suggest, at least one feature of each of independent claims 21, 26, 31, and 36, and Watanabe thus fails to disclose or suggest each and every feature of claims 21, 26, 31, and 36. Watanabe also fails to disclose or suggest each and every feature recited by claims 22-25, 27-30, 32-36, and 37 at least by virtue of their dependency from one of claims 21, 26, 31, and 36. Moreover, these dependent claims recite additional novel features.

To illustrate, claim 22, which depends from claim 21, recites the additional features of "wherein the first actuator decoupler comprises a linear modification module having an input coupled to the output of the second actuator control law portion, and an output to provide a linearly scaled representation of a value received at its input; wherein the linearly scaled representation is used to provide the signal with decoupling compensation for the first actuator decoupler portion." The Office asserts that the DSP 129 of Watanabe "provides linearly scaled output such as digitization and amplification." *Office Action*, p. 5. However, no passage of Watanabe can be found that teaches that the digitization or amplification performed by DSP 129 is linear in nature and the Office has not shown that this aspect is inherent to the disclosure of Watanabe. Accordingly, there is no support for the interpretation that Watanabe discloses linear amplification/digitization as proposed by the Office.

As another example, claim 32, which depends from claim 31, recites the additional features of "wherein the decoupler modifies a focus command to have a reduced effect on a tracking position of the lens assembly and modifies a tracking command to have a reduced effect

on a focus position of the lens assembly." With respect to these features, the Office asserts that "gain change means 121, 122 and 127 are cascaded in series mode which modifies a tracking mode and a focusing mode." *Office Action*, p. 8. Even assuming, arguendo, that this interpretation is reasonable and supported, the Office fails to disclose how the alleged modifications caused by the cascading of the gain change circuits 121, 122, and 127 would "modify a tracking command to have a reduced effect on a focus position" or would "modify a focus command to have a reduced effect on a tracking position" as recited by claim 32.

In view of the foregoing, it is respectfully submitted that the anticipation rejection of claims 21-37 is improper at this time. Reconsideration and withdrawal of this rejection therefore is respectfully requested.

Conclusion

The Applicants respectfully submit that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

The Applicants believe no additional fees are due, but if the Commissioner believes additional fees are due, the Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-3797.

Respectfully submitted,

/Ryan S. Davidson/ August 2, 2007

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